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Overview of Research on Natural Repellents

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A brief overview of chemosensory work being conducted at the DWRC Olympia Field was provided. Three studies were presented: 1) aversive constituents of digitalis; 2) repellency of predator urines; and 3) selection oriteria of black bears foraging on douglas-fir. Digitalis (Digitalis purpurea) is being investigated as a potential "natural" repellent. Preferred foods treated with simple extracts of digitalis are avoided by mountain beaver. Further investigations demonstrated that the cues within digitalis avoided by mountain beaver are not the common toxic glycosides. Predator urines are generally avoided by herbivores. We demonstrated that a coyote's diet affects the repellency of its urine. This response corresponds with a decrease in sulfur constituents within the urine. The data are consistent with the hypothesis that diet composition and sulfurous metabolites of meat digestion are important for the repellency of predator odors to potential prey. Bears foraging on douglas-fir appear to select for preferred trees. We conducted a study to determine whether preferences reflected the presence of carbohydrates and terpenoids in the sapwood. The data indicated that preference is positively correlated with carbohydrates and negatively correlated with terpenoids.